

ASTD/TDI Project Static Report

Improved System for Tank Sludge Retrieval, Conditioning, and Transfer

Focus Area: Tanks Focus Area

TTP No.: OR08SD10

Lead Site: Oak Ridge

Project No.: 98-TDI-09

Tech ID/TMS No.:

Focus Area Manager: Marcus Glasper, (509) 372-4012

Principal Investigator: Ben Lewis, (423) 574-4091

Technology Vendor(s)/Commercial Partner(s):

None identified at this time

Related Publication(s): DOE/EM-0370, DOE-EM-0406

Web Page(s):

Description:

This suite of technologies provided improved methods for removal of sludge from waste storage tanks.

-Houdini II is a track-mounted vehicle equipped with manipulator arm, bulldozer, and remote camera.

-Ultra-high pressure scarifier used with the Light Duty Utility Arm cleans tank walls.

-Hose management arm provides a reliable system for hose management that helps reduce radiation exposure to operators.

-SCARAB III is a four-wheel drive robot capable of deploying a variety of tools including retrieval of samples from horizontal tanks.

-Pulsair mixer is a no-moving parts technology that uses air bubbles to mix tank contents.

-Waste Conditioning System includes grinders, samplers, and a particle size distribution monitor.

-Solid/Liquid Separations Sytem is a modular, skid mounted, cross-flow filtration system used in the management of large sluice water and supernate volumes during sludge transfer operations.

-AEAT Bulk Sludge Retrieval System consists of a fluidic pressure/vacuum control system, change vessels, nozzles, and connecting piping.

Russian Pulsating Mixer Pump uses air delivered by a motorized rotary to alternate vacuum and pressure pulses to mobilize waste and scour the tank floor.

-Flygt Mixers suspend sludges dislodged by the Spar, etc.

Application:

All sites with radioactive waste storage tanks requiring content removal and tank cleanup.

Location(s):

Bethel Valley Evaporator Service Tanks, Gunitite and Associated Tanks, Melton Valley Storage Tanks at ORO

Technology(ies):

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AEAT Bulk Sludge Retrieval System

Flygt Mixer

Hose Management Arm II

Houdini II

Pulsair Mixer

SCARAB-III

Sludge Conditioning System

Solid/Liquid Separation System

Ultra-High Pressure Pump

	Funding (\$K):	<u>FY-98</u>	<u>FY-99</u>	<u>FY-00</u>	<u>FY-01</u>	<u>Total</u>
TTP No.:	OR08SD10	\$2,775	\$1,881	\$2,600	\$0	\$7,256
Leverage Source:	ORNL					\$3,870
Funding Total (\$K):						\$11,126

Cost Savings (\$M):	<u>Proposal</u>	<u>Deployment Plan/TTP</u>	<u>Current Focus Area Projection</u>
	Pending	Pending	\$325,000